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ABSTRACT

This investigation of first-time job placement of new PhD's was based on data from the National Research Council's doctorate record files and analyzed through the development of a new quality rating scheme that separates colleges and universities into 12 groups. An analysis of the percentages of new women doctorates in research, postdoctoral work, and teaching during the year 1967-73 provided no evidence of discrimination against women in first job placement in research and development and postdoctoral activity, while the evidence suggesting earlier discrimination in teaching appointments disappeared by 1973. It was also suggested that the long-range development of an academic career probably depends more on a new doctorate's first job than on any other factor. (MJM)

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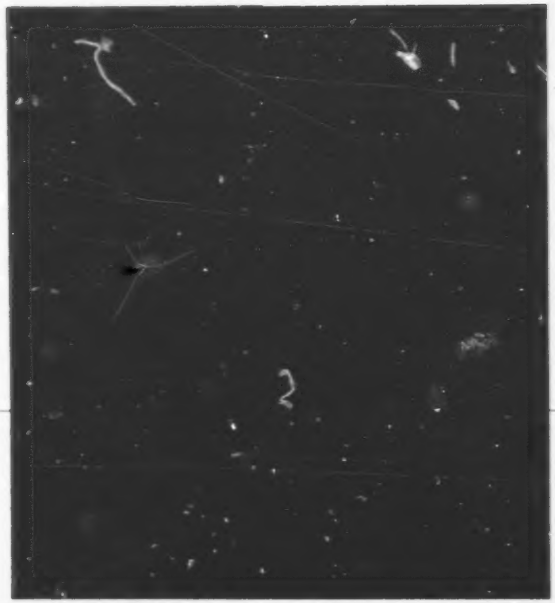

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Allan M. Cartter
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By Allan M. Cartter and Wayne E. Ruhter

Higher Education Research Institute
924 Westwood Blvd., Suite 850
Los Angeles, California 90024

ALLAN M. CARTTER is professor of higher education at the University of California, Los Angeles, and director of the UCLA Laboratory for Research on Higher Education.

WAYNE E. RUHTER is assistant professor of economics at California State University, Fullerton.

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HERI Research Report 75-1

The Disappearance of Sex Discrimination in First Job Placement of New PhDs

Numerous studies have confirmed that the scientific and academic communities historically have provided positions and rewards for women which were less desirable than those for men (Bayer & Astin, 1968; Carnegie Commission, 1973; Rossi & Calderwood, 1973). Recently, studies have indicated that the sex differential has been reduced, particularly among younger members of the labor force, suggesting that growing awareness of civil rights by employers as well as antidiscrimination regulations have influenced the educational system (Bayer & Astin, 1974; Lester, 1974). The study reported here focuses on recent men and women doctorates at their point of entry into the labor market.

This investigation relied primarily on the National Research Council (NRC) doctorate record file to appraise the quality of first job placements of PhDs from 1967 through 1973. The time span provides a sound basis for analysis since it covers the period between a peak and a trough in academic hiring, as well as a period when equal employment pressures were applied to colleges and universities. This analysis drew on an approach developed by John Niland (1972), who demonstrated the relationship between academic job market conditions and the quality of placements for research doctorates for 1967-68 and 1968-69. Niland concluded that when market conditions for doctorates are improving, a larger proportion of the doctorates obtain positions at the more prestigious institutions. Doctorates are "pulled" up the quality ladder so a larger proportion assume positions at institutions equal or superior in quality to those at which they received their PhDs. A depressed academic labor market will exhibit the opposite phenomena. Our study developed a finer classification of employing institutions than Niland's analysis, distinguished between men and women doctorates, and extended the data to 1973 to examine doctorates entering teaching, research and development, and postdoctoral study. Generally, this period of declining market opportunities has seen significant improvements in the representation of women at the highest quality universities and a significant relative improvement in their position at all other institutions. This positive mobility has resulted primarily from

a decline in this measure of placement for men, while women doctorates either increased or maintained their position. By 1973 women doctorates from all quality classes of doctoral institutions absolutely outperformed men doctorates.

Method of Analysis and Sample

For this study a quality rating scheme was developed which separates educational institutions into 12 groups. (Niland used the American Council on Education [Cartter] quality ratings of universities, but the ACE study included only 106 major universities; Niland combined the other 2,500 institutions of higher education into an "other" category.) Any such categorization is imprecise and may not adequately measure the true quality of education provided to students or the institution's desirability as an employer for new doctorates. However, even a rough ranking system should provide a more accurate picture of the academic labor market than that obtained if one assumes all institutions are alike and equally desirable.

To develop the prestige groupings, the 1964 and 1969 American Council on Education (ACE) ratings of graduate programs (Cartter, 1966; Roose & Andersen, 1970) were utilized to divide doctoral-granting institutions into five categories. Group I includes the 10 top ranked universities. Group II comprises the next 20. Group III includes universities ranked 31 through 65, while Group IV includes all other ACE-rated institutions (69). Group V is made up of 118 doctoral-granting universities unranked in the ACE studies, which only included universities that averaged at least 10 PhDs per year for the preceding decade. Thus, Group V institutions are either quite small or relative newcomers to the doctoral scene.

The non-doctoral-granting four-year institutions were similarly grouped into five classes on the basis of an unpublished study done by Cartter in 1965 in which five quantitative measures were used to find proxies for prestige. None of these measures was adequate, but in concert they appeared to give a reasonably good rank ordering of colleges. The five indices, based largely on Office of Education and ACE data, were educational and general expenditure per full-time-equivalent (FTE) students, books per student in college library, average compensation per faculty member, percentage of faculty whose highest degree was the doctorate, and percentage of BAs who won national doctoral fellowships, such as Woodrow Wilson, NDEA, and NSF awards. (The techniques of Robert Knapp, [1964; Knapp & Goodrich,

1967] were used to calculate this latter percentage: the number of women baccalaureates was multiplied by .2 to allow for the fact that women BAs have been much less likely to attain the PhD. Thus, institutions with a high proportion of women students were not unduly penalized in the scoring.) Colleges were scored on a five-point scale for each index. The average of the five scores determined the rank position for the accredited senior colleges in the study. After the institutions had been grouped into five classes, each group was reviewed for any obviously misplaced institutions. The judgment of the authors was that 17 colleges were rated too high by this scoring (perhaps due to inadequate or incorrectly reported data), and four institutions were scored too low. These 21 colleges were moved down or up one group. Particular attention was paid to the approximately 15 percent of the institutions for which only four scores could be computed, and the nearly 10 percent for which only three indices were available. While, undoubtedly, a few institutions were incorrectly grouped by these quantitative measures, the number of dubious cases appeared small enough to be relatively insignificant for analysis.

Group VI, the elite four-year colleges, includes such institutions as Amherst, Claremont Men's College, Wellesley, and Hamilton among the 36 so classified. Group VII, consisting of 153 colleges, includes such institutions as Franklin and Marshall, Drew, Sewanee, Alfred, Kalamazoo, Sweet Briar and Brooklyn College (City University of New York). The 249 institutions in Group VIII include Adelphi, Rollins, Whittier, Shimer, California State University at San Diego, and Western Michigan University. Group IX includes all other accredited four-year institutions (466), while Group X is reserved for unaccredited four-year institutions (a surprising 617).

Group XI includes all two-year colleges in the country. Ideally, this group should have been separated into two or three subgroups, for two-year colleges are probably as widely differentiated as four-year institutions. However, sufficient data were not available and, traditionally, such a small proportion of doctorates have become junior college teachers that this distinction is less important for this study.

Finally, Group XII includes all doctorates who took positions in elementary and secondary schools. Presumably, this group consists largely of graduates from schools of education.

The data to classify universities and colleges were drawn from the years 1962-1969, an appropriate period to analyze first job placements in 1967-1973 because of the expected time lag in the reputation of institutions.

Table 1

Percentage of New Doctorates Awarded to Women, by Doctoral-Granting Institution, 1967-1973

Doctoral-Granting Institution	1967	1968	1971	1972	1973
Group I	9.2	10.4	13.0	14.4	17.4
Group II	12.3	13.2	15.0	16.6	18.9
Group III	10.8	12.1	14.6	14.9	18.0
Group IV	12.1	11.3	13.0	15.4	16.6
Group V and below	10.5	11.1	13.7	15.0	16.3
universities (doctorates entering teaching, R&D, and postdoctoral study)	11.2	12.0	14.0	15.4	17.7
All universities (all doctorates)	12.0	12.8	14.4	16.0	18.1

Note. Computed from doctoral record file data, *Summary Report on Doctorate Recipients from United States Universities, 1967-1973,* National Research Council, Washington.

For the years 1967, 1968, 1971, 1972, and 1973, the NRC doctorate record file has information on first job placement for all doctorates who had definite plans at the receipt of their degree. Thus, the number of degrees given by each class of doctoral-granting institution, as well as the number hired by each class of employing institution, is known for those doctorates entering teaching, research and development, or postdoctoral study. These three activities represent the postdegree pursuits of about 75 percent of the doctorates awarded in the U. S. When one excludes those doctorates whose postdegree plans were uncertain at the time they received the degree and those who assumed positions in foreign countries, these activities account for approximately 85 percent of all persons earning the doctorate (NRC, 1967-1973).

Table 1 shows the percentage of doctorates awarded to women

during 1967-1973. The Group II universities (55 percent are state institutions) are the only institutions consistently above average, though the Group III and IV institutions are above the overall average in some years. Group I universities (eight are private; five were essentially men's universities until the 1940s) have recorded quite a dramatic increase over the last few years.

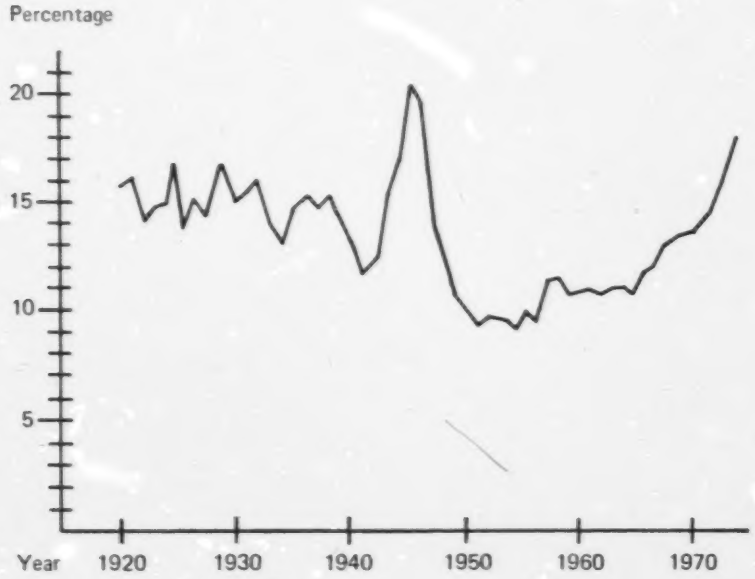

Figure 1. Percentage of doctorates awarded to women. (From *Summary Report on Doctorate Recipients from United States Universities, 1972, 1973,* National Research Council, Washington.)

As Figure 1 shows, the recent increase in the share of doctorates awarded to women has brought the total to a historically high level (with the exception of the World War II years). Table 2 shows that this increased share reflects a higher rate of growth in doctorates awarded to women than to men, beginning in 1966. With the end of the draft in 1969 and the less rosy job prospects in the 1970s – especially in the sciences where men averaged 93 percent of the doctorates – the growth rate for men has dropped sharply and turned slightly negative in 1973. By contrast, the rate of increase in women doctorates rose significantly in 1966 and has remained high through the last eight years.

Table 2

Percentage Increase of Doctorates Awarded Annually, by Sex, 1963-1973

Year	Men	Women	Combined Total
1963	10.4	12.5	10.7
1964	12.6	12.2	12.6
1965	14.2	12.7	14.1
1966	8.8	18.8	9.9
1967	13.1	16.7	13.5
1968	11.4	20.1	12.4
1969	12.8	15.6	12.3
1970	14.2	17.2	14.6
1971	6.9	15.7	8.0
1972	1.7	15.0	3.6
1973	−.3	15.1	2.2

Note. From *Summary Report on Doctorate Recipients from United States Universities, 1972, 1973,* National Research Council, Washington.

The higher growth rate for women doctorates results from the increasing percentage of women BAs who entered graduate school about 1960 and the rising doctoral completion rate (the ratio of doctorates to first-year graduate school enrollments four to seven years earlier). Table 3 displays some key entrance and degree completion ratios by sex for recent years, revealing a progressive narrowing in the difference between these ratios (most relevant for doctoral education) for men and women. These data suggest changes in the perceptions of men and women regarding the career opportunities that result from advanced schooling. The economist's human capital approach to education would view graduate training as an investment decision with changes in enrollment and completion rates related to changes in the perceived sacrifices and rewards associated with schooling. In this view

Table 3

Graduate Entrance and Degree Completion Ratios, by Sex, 1960-1973

Year	Ratio of BAs to First-Year Graduate Enrollment (Weighted Average)			Ratio of PhDs to First-Year Graduate Enrollment 4-6 Years Earlier (Weighted Average)		
	Men (1)	Women (2)	(1) ÷ (2) (3)	Men (4)	Women (5)	(4) ÷ (5) (6)
1960	.64	.43	1.48	.097[b]	.029[b]	3.34
1961	.68	.46	1.48	.099[b]	.030[b]	3.30
1962	.71	.49	1.45	.098[b]	.031[b]	3.15
1963	.75	.51	1.47	.098[b]	.031[b]	3.15
1964	.79	.53	1.49	.100[b]	.030[b]	3.33
1965	.82	.57	1.44	.104[b]	.031[b]	3.35
1966	.81	.59	1.37	.106	.032	3.31
1967	.84	.67	1.25	.108	.032	3.38
1968	.78	.65	1.20	.108	.033	3.27
1969	.72	.63	1.14	.108	.033	3.27
1970	.70	.62	1.13	.112	.033	3.39
1971	.65	.59	1.10	.110	.033	3.33
1972	.65[a]	.59[a]	1.10[a]	.107	.034	3.15
1973	.63[a]	.57[a]	1.11[a]	.102[a]	.033[a]	3.09[a]

Note. Calculated from *Projections of Educational Statistics*, 1973, National Center for Educational Statistics, Washington.

[a]Preliminary.

[b]Sex distribution of first-year enrollment prior to 1960 estimated by authors from total enrollment data.

the declining differences between men's and women's graduate enrollment and degree completion rates indicate a narrowing in the difference between the benefits and costs of training perceived by men and women.

The relative cost of schooling for men and women has not changed significantly in recent years, but, on the benefit side, Bayer and Astin (1974) found that salaries for academic women are more closely approaching those for men. While the present difference in average salary between men and women is in the neighborhood of 20 percent, correcting for differences in degree, years of employment, academic discipline, research productivity and rank significantly reduces this salary differential. While the differences do not entirely disappear, differentials have been almost eliminated at the point of entry into college teaching, even though they persist among the older members of the profession. As Bayer and Astin (1974, p 9) concluded: "The amount of differential in rank which could be attributable to sex was halved during the period [1968-69 to 1972-73], and salary differentials by sex were all but eradicated for faculty members in junior ranks."

Academic Job Placements

The placement data also support the hypothesis that rewards for women from graduate training have risen compared with those for men. Table 4 shows the percentage of new women doctorate teachers by class of employing institution from 1967 to 1973. The most dramatic increase occurred in the university sector and, particularly, among the high prestige universities. Compared with 1967 and 1968, 1971 and 1972 showed a growth of nearly 50 percent in the proportion of women hired, while 1973 saw close to double the proportions of five years earlier. It has been reported that affirmative action compliance pressures have been applied disproportionately to the more outstanding colleges and universities, on the assumption that this concentration would have greater impact in the total educational system. Data in Table 4 for Group I and II universities suggest that these programs have yielded significant results.

Throughout the period, representation of women among new doctorate faculty for the universe of education has steadily improved but at a pace not visibly different from the increased representation of women among all doctorates awarded. Thus, as a corollary to the increased employment of women PhDs in the high prestige senior institutions, representation of women has decreased among the new doctorate teachers hired by the two-year colleges, the public schools, and the least prestigious four-year colleges since the late 1960s.

Data on the increased proportion of doctorates hired by the lower categories of institutions show that in the last year or two men have

Table 4

Percentage of New Women Doctorate Teachers, by Employing Institution, 1967-1973

Employing Institution	1967	1968	1971	1972	1973
Group I	4.4	10.0	15.0	15.4	27.8
Group II	12.9	13.7	16.4	18.5	25.2
Group III	13.7	12.9	18.3	19.6	22.5
Group IV	9.3	10.8	13.9	15.6	17.9
Group V	10.7	12.2	15.0	15.8	18.4
All universities	10.7	12.2	15.5	16.9	20.6
Group VI	22.1	10.0	16.0	28.8	27.2
Group VII	19.4	16.4	19.1	17.4	21.1
Group VIII	17.6	16.9	17.1	18.0	21.6
Group IX	16.1	16.1	16.6	18.6	18.1
Group X	28.1	22.7	22.4	20.3	20.4
All four-year colleges	19.0	16.7	17.9	18.8	20.1
Two-year colleges	27.0	23.7	21.3	26.0	22.2
Elementary and secondary schools	35.8	29.5	29.4	26.4	26.6
All educational institutions	14.7	14.5	17.3	18.5	20.8

Note. Computed from doctorate record file data, National Research Council, Washington.

fared considerably less well both relatively and absolutely in placement at prestigious colleges and universities. Table 5 compares the percentage of men and women doctorates hired by each class of institution. Between 1967 and 1973 the university sector declined from first employer of 62.2 percent to 41.5 percent of the men doctorates. For women PhDs the decline was a more modest 43.5 percent to 41.1 percent. By 1973 a larger percentage of women than men doctorates were being placed in Group I, II, and III universities and in Group VI,

Table 5

Percentage of New Doctorate Teachers Hired, by Employing Institution and Sex, 1967-1973

Employing Institution	1967	1968	1971	1972	1973
Men					
Group I	5.6	4.3	2.7	2.3	2.0
Group II	11.3	10.8	8.7	8.3	6.1
Group III	12.1	11.8	8.7	8.9	8.0
Group IV	18.5	17.3	15.7	14.6	12.9
Group V	14.6	14.2	13.3	14.1	12.5
All universities	62.2	58.5	49.0	48.3	41.5
Group VI	2.4	2.5	1.8	1.6	1.8
Group VII	8.5	8.8	8.9	8.8	9.0
Group VIII	9.0	9.0	11.6	11.0	11.7
Group IX	11.5	14.5	17.4	17.6	20.0
Group X	3.2	4.1	4.8	5.6	6.4
All four-year colleges	34.5	38.9	44.5	44.5	48.9
Two-year colleges	1.3	1.3	3.1	3.8	5.7
Elementary and secondary schools	2.0	1.4	3.3	3.4	3.9
Total	100.0	100.0	100.0	100.0	100.0
Women					
Group I	1.5	2.8	2.2	1.9	2.9
Group II	9.6	10.2	8.2	8.3	7.9
Group III	11.2	10.4	9.3	9.6	8.9
Group IV	11.0	12.5	12.1	11.8	10.7
Group V	10.1	11.8	11.3	11.7	10.7
All universities	43.5	47.7	43.2	43.2	41.1
Group VI	3.9	1.6	1.6	2.8	2.6
Group VII	11.8	10.3	10.1	8.1	9.2
Group VIII	11.2	10.9	11.4	10.6	12.2
Group IX	12.9	16.5	16.5	17.7	16.9
Group X	7.3	7.1	6.7	6.2	6.3
All four-year colleges	47.0	46.5	46.3	45.5	47.2
Two-year colleges	2.9	2.5	4.1	5.9	6.2
Elementary and secondary schools	6.6	3.3	6.5	5.4	5.5
Total	100.0	100.0	100.0	100.0	100.0

Note. Computed from doctorate record file data, National Research Council, Washington.

Table 6

Percentage of New Women Doctorate Teachers, by Employing Institution and Discipline, 1967-68, 1972-73

Employing Institution	Biology		Economics		English	
	1967-68	1972-73	1967-68	1972-73	1967-68	1972-73
Group I	14.3	25.0	2.5	10.7	14.3	35.7
Group II	22.2	16.3	8.3	2.8	20.4	34.2
Group III ...	25.6	24.6	6.8	7.8	20.6	37.1
Group IV ...	10.4	12.2	2.7	7.6	19.9	25.5
Group V	9.4	12.6	1.4	4.0	18.0	26.9
All universities	15.0 (34/227)	16.4 (48/293)	4.3 (16/368)	5.9 (23/393)	19.2 (107/557)	30.1 (198/658)
Group VI ...	27.3	30.8	13.3	10.5	18.2	51.3
Group VII ...	21.8	13.4	2.8	8.8	22.1	30.9
Group VIII ..	17.2	18.6	8.6	11.5	27.4	30.2
Group IX ...	8.6	9.8	7.0	6.1	31.7	30.8
Group X	28.6	23.0	8.3	0.0	38.5	35.6
All four-year colleges ...	16.1 (54/335)	15.0 (61/406)	7.1 (10/141)	7.7 (26/337)	28.0 (127/454)	32.3 (274/849)
Two-year colleges ...	5.9 (1/17)	24.6 (15/61)	0.0 (0/1)	25.0 (1/4)	45.4 (10/22)	44.1 (41/93)
Elementary and secondary ..	0.0 (0/2)	23.5 (4/17)	0.0 (0/1)	0.0 (0/1)	58.3 (7/12)	60.7 (17/28)
All educational institutions .	15.3 (89/581)	16.5 (128/777)	5.1 (26/511)	6.8 (50/735)	24.0 (251/1045)	32.6 (530/1628)

Note. Computed from doctorate record file data, National Research Council, Washington. Absolute numbers of women doctorates over total doctorates employed given in parentheses.

VII, and VIII colleges. In the late 1960s the first job placement pattern was quite different for women and men; by 1973 the difference was not appreciable. This equality resulted, however, from a steady deterioration in job opportunities for men, while women held their own in a declining job market reasonably well. For both men and women, the increase in the proportion taking first jobs in two-year colleges has been steady.

Table 7

Percentage of New Women Doctorate Researchers, by Employing Institution, 1967-1973

Employing Institution	1967	1968	1971	1972	1973
All educational institutions	9.7	10.2	11.2	14.3	18.2
Group I	12.1	9.8	15.3	12.4	21.6
Group II	9.2	12.2	13.8	18.9	22.7
Group III	8.1	10.9	10.6	17.8	16.1
Group IV	7.8	8.4	7.7	10.8	15.2
Group V	5.5	7.1	9.0	7.1	10.7
Group VI and below	16.7	11.6	13.5	14.9	22.1
Government	5.0	6.6	16.2	5.3	9.1
Industry/business	1.4	1.8	1.9	2.1	3.7
Other	7.5	11.1	7.6	19.8	25.2

Note. Computed from doctorate record file data, National Research Council, Washington.

From data in the doctorate record file, three disciplines were selected as reasonably representative of the sciences, social sciences, and humanities. Biology was chosen for the sciences because it had a larger representation of women than did physics or chemistry. Under this logic, sociology should have been selected in the social sciences, but the authors' identification with economics and a limited data processing budget dictated a different choice. English represented the nonscience fields.

Table 6 shows the average percentage of new women doctorate teachers in 1967-68 and 1972-73 for the three disciplines. For Group I universities a marked improvement in the proportion of women hired was evident in all three subject areas. For other classes of institutions the performance was mixed; only Group IV and V universities and Group VIII senior colleges showed improvements in all disciplines. For all educational institutions, only English showed a significant increase.

Table 8

Percentage of New Doctorates in Research and Development, by Employing Institution and Sex, 1967-1973

Employing Institution	1967	1968	1971	1972	1973
Men					
Educational institutions	20.1	24.6	13.2	19.9	21.0
Government	16.9	16.6	4.5	30.2	24.2
Industry/business	52.8	49.8	53.7	42.4	47.2
Other	10.2	9.0	28.6	7.5	7.6
Total	100.0	100.0	100.0	100.0	100.0
Women					
Educational institutions	47.8	48.5	29.8	45.4	44.3
Government	18.6	18.8	12.9	21.8	20.9
Industry/business	16.6	15.4	18.3	12.4	16.5
Other	16.8	17.3	39.0	20.4	18.3
Total	100.0	100.0	100.0	100.0	100.0

Note. Computed from doctorate record file data, National Research Council, Washington.

The actual number of cases in parentheses indicates that English showed the most substantial absolute gains for women.

Tables 7 and 8 show the relative performance of men and women doctorates in first job placements in research and development. Universities have provided the most important source of research positions for women, while industry has been most important in the placement of men doctorates. Differences by employer and sex in each employment sector over the six-year period reflected more the change in mix among fields of study than in changing propensities of members of these fields to take first jobs in one employment sector or another.

Table 9

Percentage of Women Postdoctoral Students, by Resident Institution, 1967-1973

Resident Institution	1967	1968	1971	1972	1973
Group I	10.3	9.9	11.6	13.1	16.4
Group II	13.9	14.3	11.6	11.9	13.5
Group III	9.7	10.5	10.1	9.3	15.5
Group IV	12.9	12.4	10.6	8.6	11.5
Group V	11.4	9.4	5.7	6.2	13.9
Group VI and below	15.4	23.8	15.0	15.5	20.2
All educational institutions	11.9	12.2	10.9	10.8	14.7

Note. Computed from doctorate record file data, National Research Council, Washington.

Among doctorates in R & D at educational institutions, the general pattern has remained quite stable except for a poor hiring year in 1971. The men showed a fairly substantial increase in government employment (but with great year-to-year variation), while the pattern for women did not change appreciably over the six years.

Tables 9 and 10 show the percentage of doctorates in postdoctoral study. The pattern did not alter greatly over the six-year period, although women improved their relative position in 1973; improvements were most marked in Group I and III universities. Table 10, however, indicates considerable variation from year to year. Over the six years the pattern of postdoctoral appointment did not differ greatly for men and women PhDs, although postdoctoral appointments were most common in the hard sciences where women were relatively few.

Table 10

Percentage of Postdoctoral Students, by Resident Institution and Sex, 1967-1973

Resident Institution	1967	1968	1971	1972	1973
Men					
Group I	30.0	25.9	21.2	20.7	20.5
Group II	31.0	34.2	30.9	31.0	26.1
Group III	20.7	21.4	22.4	22.9	22.6
Group IV	11.2	13.0	16.7	16.9	19.4
Group V	3.4	3.3	5.8	5.9	7.7
Group VI and below	3.5	3.2	3.0	2.6	3.8
Total[a]	100.0	100.0	100.0	100.0	100.0
Women					
Group I	25.6	20.5	22.8	25.8	23.2
Group II	37.2	40.9	29.9	34.6	24.8
Group III	16.5	18.1	20.8	19.4	24.1
Group IV	12.4	13.1	16.3	13.1	14.7
Group V	3.3	2.5	2.9	3.2	7.3
Group VI and below	5.0	4.9	4.3	3.9	5.9
Total[a]	100.0	100.0	100.0	100.0	100.0

Note. Computed from doctorate record file data, National Research Council, Washington.

[a]Columns may not total 100% due to rounding.

Considering the placement information for these three postdegree activities, it appears that the declining demand for doctorates since 1967 has adversely affected opportunities for both men and women, with the larger adjustment borne by men. Table 11, which indicates employment prospects facing new degree-holders for alternate years since 1965, provides additional insight into the differential consequences of these changes in the doctoral labor market. The percentage of doctorates who had already signed contracts at the time they received their degree was higher in 1967 than in later years, although this may reflect the practice in a tighter labor market of hiring doctoral

Table 11

Percentage of Doctorates in Labor Market, by Employment Prospects and Sex, 1965-1973

Year	Signed Contract	Negotiating	Seeking Prospects	Other, Unknown
		Men		
1965	80	8	5	7
1967	81	7	4	7
1969	79	8	7	6
1971	77	7	12	4
1973	73	8	14	5
		Women		
1965	72	9	10	9
1967	73	9	10	9
1969	67	9	16	8
1971	65	9	19	8
1973	63	11	20	6

Note. 1965-1969 figures from "Career Profiles of Women Doctorates," by Helen S. Astin, in *Academic Women on the Move,* edited by Alice S. Rossi and Ann Calderwood. Copyright 1973 by Russell Sage Foundation; 1971-1973 figures calculated from data of the National Research Council, Washington.

candidates prior to degree completion with the understanding that the remaining work will be completed during their new employment. Between 1967 and 1973, however, the percentage of men who had signed contracts at the time they completed degree requirements fell by 8 percentage points, while the percentage of women fell by 10 percentage points. The loosening market appears more strongly in the percentage of doctorates still seeking prospective employers. The

percentages of those who are negotiating or who have already signed contracts are susceptible to several interpretations, not all implying a depressed market. Optimistic interpretations, however, are less plausible when doctorates have not yet begun negotiating. Since 1967 the percentage of women seeking prospects has doubled, while those percentages for men have almost tripled. However, the certainty of future employment was greater each year for men than for women doctorates. Larger percentages of men had already signed contracts and larger percentages of women were either still negotiating or looking for a party with whom to begin negotiations.

In one sense, Table 11 tells more about the changing doctorate labor market conditions in general than it does about meaningful trends in sex differentials. If at the time a married woman receives her degree, the family chooses to favor the husband's career in a way that restricts the wife's ability to search for employment, this first job placement data will continue to favor men, and the higher proportion of women without definite employment will reflect aspects of family decision making. Unfortunately, data are not available separately for married and single doctorates, so it is impossible to determine the weight to attach to this view. NRC data indicate that 55.2 percent of women doctorates in 1973 were married. Still, it is unclear to what degree the higher proportion of women reporting no serious job offer was a voluntary pattern. (Solmon [1973, p. 322] has noted the significance of the husband's career in explaining the greater likelihood that women will attend institutions in metropolitan areas, which also offer the husband more school and employment opportunities. In a comment consistent with this view, Harris [1970, p. 289] noted that Columbia University awards more doctorates to women than any other American university.)

One way to measure the placement performance of men and women doctorates, incorporating information on degree sources, is to determine the proportion of doctorates who take their first postdegree placement at educational institutions equal or superior in quality to their doctoral-granting institution. While Niland's work (1972) also employed this approach, he chose to combine all non-doctoral-granting colleges into a single group below the lowest ranked universities. By contrast, to determine whether a doctorate went to an equal or superior quality institution, this study viewed the university and college groups in an overlapping order. Thus, we assumed that placements at such Group VI colleges as Smith, Bowdoin, or Grinnell have about the same appeal to a young PhD as equivalent offers from such Group III universities as Florida State, New York University, or Case Western Reserve. Similarly, placements at Group VII colleges are equated with

Table 12

Percentage of New Doctorates Teaching at Institutions Equal or Superior to Degree-Granting Institutions, by Sex, 1967-1973

Degree-Granting Institution	1967	1968	1971	1972	1973
			Men		
Group I	20.1	18.8	13.4	13.8	10.3
Group II	23.0	21.2	18.8	17.3	14.5
Group III	25.8	25.6	19.1	19.5	16.0
Group IV	41.1	36.4	32.3	30.8	26.4
Group V	60.8	56.1	50.7	48.7	44.3
All universities	29.2	27.6	24.4	23.9	20.6
			Women		
Group I	8.9	15.3	10.0	11.4	12.8
Group II	19.8	19.6	17.6	15.7	17.9
Group III	23.8	25.9	22.4	27.4	21.7
Group IV	27 0	35.6	33.0	31.5	30.5
Group V	51.6	55.8	46.9	45.6	44.8
All universities	22.8	26.7	24.4	24.9	23.8

Note. Computed from doctorate record file data, National Research Council, Washington.

those at Group IV universities and Group VIII colleges with those at Group V universities. Thus, the finer distinctions used here for the non-doctoral-granting institutions treat the universe of higher education in a more meaningful way than Niland's more aggregated approach.

Table 12 shows the percentage of doctorates entering teaching from each class of degree-granting institution who found positions in institutions of equal or superior prestige. In 1967 the horizontal or upward mobility of men doctorates was much more pronounced than that of women; by 1973, however, the situation had completely reversed with the women graduating from every class of university outperforming the men. The year 1968 was reasonably good for

21.A

Table 13

Percentage of Doctorates Teaching in Class I-IV, VI, VII Institutions, by Sex, 1967-1973

Degree-Granting Institution	1967	1963	1971	1972	1973
Men					
Group I	81.3	81.9	71.7	74.5	67.5
Group II	67.7	64.9	58.4	55.5	50.9
Group III	51.6	51.5	43.2	41.3	38.3
Group IV	41.1	36.4	32.3	30.8	26.4
Group V	22.0	23.0	17.2	19.2	15.6
All universities	58.1	55.2	56.0	46.3	39.7
Women					
Group I	65.8	68.0	59.1	63.3	64.2
Group II	61.5	54.5	56.6	50.1	51.8
Group III	49.7	47.5	42.3	45.2	40.0
Group IV	27.0	39.4	33.0	31.5	30.5
Group V	29.0	48.0	13.5	12.1	17.2
All universities	48.9	50.7	43.6	42.2	42.0

Note. Computed from doctorate record file data, National Research Council, Washington

women, but then the deterioration in general academic market conditions caused a decline in high prestige placements which was experienced almost equally by men and women. In 1972 and 1973, women almost held their own in absolute terms, while men continued to experience a downward trend.

To look at the same phenomenon in another way, one might pick some arbitrary dividing line between the nationally recognized high-status institutions and all other colleges and universities. Such a line might place the Group I-IV universities and VI and VII colleges on the upper side and all other institutions on the lower side. Table 13 shows the year-by-year performance of doctorates from each class of graduate school on this type of measure.

Table 14

Percentage of New Doctorates Entering Research and Development at Institutions Equal or Superior to Degree-Granting Institutions, by Sex, 1967-1973

Degree-Granting Institution	1967	1968	1971	1972	1973
Men					
Group I	68.0	57.3	47.1	44.4	46.0
Group II	70.2	65.2	45.3	50.3	43.9
Group III	68.1	71.5	42.0	58.2	59.0
Group IV	89.3	89.0	77.7	82.3	73.6
Group V	92.6	96.7	87.8	94.2	87.1
All institutions	73.3	71.1	60.3	61.0	57.8
Women					
Group I	76.2	59.3	57.1	31.6	45.2
Group II	60.0	73.3	72.2	63.0	64.6
Group III	80.0	91.7	61.1	78.1	61.8
Group IV	37.5	94.7	88.9	95.7	63.9
Group V	66.7	40.0	100.0	100.0	88.9
All institutions	70.8	78.3	72.4	69.6	61.7

Note. Computed from octorate record file data, National Research Council, Washington.

Tables 14 and 15 show the relative performance of men and women doctorates in R & D and postdoctoral study in institutions of equal or superior prestige. Although a smaller proportion of women than men entered these two postdegree activities than was true of teaching, those who participated in R & D and postdoctoral study fared comparatively well. In R & D placements, a slightly larger proportion of women obtained positions in equal or superior universities in all years except 1967. The advantage enjoyed by women was greatest in 1971 and had

Table 15

Percentage of New Doctorates Entering Postdoctoral Study at Institutions Equal or Superior to Degree-Granting Institution, by Sex, 1967-1973

Degree-Granting Institution	1967	1968	1971	1972	1973
Men					
Group I	63.9	58.4	57.4	60.1	58.2
Group II	76.3	74.7	71.3	72.4	68.7
Group III	87.4	85.2	82.3	81.3	79.4
Group IV	92.3	95.0	91.8	93.1	87.0
Group V	100.0	100.0	97.1	97.3	92.9
All universities	80.6	79.4	77.5	78.1	75.6
Women					
Group I	69.2	38.9	56.6	63.3	59.5
Group II	75.6	75.9	69.1	81.5	69.9
Group III	82.1	85.7	84.6	85.1	78.9
Group IV	93.3	96.7	92.6	92.5	86.9
Group V	100.0	100.0	87.5	100.0	96.8
All universities	79.0	75.4	75.5	82.7	75.4

Note. Computed from doctorate record file data, National Research Council, Washington.

narrowed again in 1973. The number of women doctorates taking R & D positions from each class of doctoral-granting institution was relatively small, however, so line-by-line comparisons are not very meaningful.

In the case of postdoctoral study, shown in Table 15, the percentages going to, or remaining in, universities of at least equal prestige are nearly identical for men and women in each of the five years.

Table 16

Percentage of New Doctorates at Institutions Equal or Superior to Degree-Granting Institutions, by Discipline and Sex, 1967-68, 1972-73

Postdegree Activity	Biology		Economics		English	
	1967-68	1972-73	1967-68	1972-73	1967-68	1972-73
Teaching						
Men	22.8 (112/491)	27.1 (173/638)	31.4 (153/486)	21.5 (147/684)	23.1 (184/796)	17.4 (190/1092)
Women	27.0 (24/89)	27.2 (34/125)	26.9 (7/26)	18.9 (10/53)	20.0 (50/250)	18.3 (94/515)
R & D						
Men	74.3 (162/218)	63.4 (116/183)	58.0 (47/81)	35.8 (24/67)	0.0 (0/1)	66.7 (2/3)
Women	79.6 (39/49)	66.7 (28/42)	100.0 (1/1)	100.0 (4/4)	100.0 (1/1)	0.0 (0/1)
Postdoctoral Study						
Men	78.9 (556/705)	77.8 (885/1137)	64.7 (11/17)	75.6 (34/45)	0.0 (0/1)	39.5 (15/38)
Women	81.1 (112/138)	84.8 (239/282)	0.0 (0/0)	100.0 (1/1)	0.0 (0/0)	50.0 (6/12)
All activities						
Men	58.7 (830/1414)	60.0 (1174/1958)	36.1 (211/584)	25.8 (205/276)	23.1 (184/798)	18.3 (207/1133)
Women	63.4 (175/276)	67.0 (301/449)	33.3 (9/27)	25.9 (15/58)	20.3 (51/251)	18.9 (100/528)

Note. Computed from doctorate record file data, National Research Council, Washington. Absolute numbers of new doctorates over total doctorates teaching given in parentheses.

Table 16 shows the percentage of doctorates in biology, economics, and English who assumed positions at institutions equal or superior to their degree-granting institution. For R & D and postdoctoral study, the number of economics and English doctorates (shown in parentheses) is small. When all activities are combined to obtain the equal or superior placement measure, the market for biologists appears improved with women doctorates enjoying a larger proportionate improvement than

men. Viewing the same figures for economics and English reveals a decline for both fields, with men doctorates suffering a proportionately larger fall.

Conclusion

This study has addressed the prestige and desirability of placement in terms of quality groups. Such a measure is appropriate to register changing market conditions in academic employment where more traditional measures such as salaries clearly provide only a partial view of the market situation. Probably more in academic than in most other labor markets, the specific employer with which an individual is affiliated contributes significantly to the terms of the employment offer the jobseeker considers. For young doctorates first employment is not just a matter of finding it pleasant to be surrounded by learned colleagues, extensive libraries, or sophisticated research equipment. Initial job placement is probably the most important factor in the long-term career development of the new PhD. The work patterns of a lifetime are usually formed in the first several years of college teaching, while visibility in one's discipline and potential mobility are markedly affected by the type of institution where one begins a career. Thus, any future reduction in the differential rewards to men and women in academe depends heavily on the current provision of equal opportunities at the beginning of a career.

A review of the tables covering 1967-1973 provides no evidence of discrimination against women in first job placement in R & D and postdoctoral activity, while evidence suggesting earlier discrimination in teaching appointments disappeared by 1973. These data do not reveal the terms of employment, only the status of the institutions to which new doctorates went. However, considering the Bayer and Astin (1974) conclusion that salary discrimination against women had apparently disappeared by 1972 for young doctorates, one can conclude that academic institutions have successfully eliminated sex inequities in the job market for the recent generation of doctorates. Beyond initial job placement, the career advancement of women depends primarily on peer review within schools and departments. Fair and equal treatment of persons of unequal ability or professional commitment will result in unequal rewards in later life. The important measure is whether women with the same qualifications and accomplishments as men are advanced and remunerated in equitable fashion throughout their professional careers. Equity at the point of entry to the job market – a critically necessary first step – had apparently been achieved in the academic arena by 1973.

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